

CLAIMS

1. A light guide plate comprising:

a first light guide layer on which light from a light source is incident, made of a material having a refractive index n_1 ; and

a scattering light guide layer for emitting, as scattering light, light incident on the first light guide layer,

the first light guide layer and the scattering light guide layer being stacked on each other in a direction orthogonal to a direction of light propagating in the first light guide layer,

wherein:

the scattering light guide layer includes at least (i) a second light guide layer made of a material having a refractive index n_2 lower than the refractive index n_1 , adjacent to the first light guide layer, and (ii) a scattering layer for scattering light propagating to the second light guide layer, and

the first light guide layer includes, on a surface opposite to a light guide surface on which the light is incident, reflection means for reflecting the light propagating in the first light guide layer so that the light is incident on the scattering light guide layer.

2. The light guide plate as set forth in claim 1, wherein the first light guide layer includes on the light guide surface a light focusing optical element for focusing light incident on the first light guide layer in a certain range of angles with respect to the light guide surface.

3. The light guide plate as set forth in claim 1, wherein the scattering layer and the second light guide layer are integrally formed.

4. The light guide plate as set forth in claim 1, wherein the second light guide layer of the scattering light guide layer contains a light scattering object.

5. The light guide plate as set forth in claim 1, wherein the scattering layer is constituted of depressions and projections formed on a surface of the second light guide layer, the surface being opposite to a surface in contact with the first light guide layer.

6. The light guide plate as set forth in claim 1, wherein the reflection means is disposed so that light incident on the reflection means is reflected at an angle smaller than an angle shown by $\sin^{-1} (n_2/n_1)$, with respect to a normal direction to a surface on which the

scattering light guide layer is formed.

7. The light guide plate as set forth in claim 1, wherein the reflection means is a hologram.

8. The light guide plate as set forth in claim 1, wherein, the first light guide layer further includes on the surface opposite to a surface on which the scattering light guide layer is formed, another scattering light guide layer.

9. The light guide plate as set forth in claim 1, wherein the scattering light guide layer further includes a reflection member on a surface opposite to a surface on which the first light guide layer is formed.

10. A lighting apparatus comprising a light guide plate as set forth in any one of claims 1 to 10, and a light source for irradiating the first light guide layer of the light guide plate with light.

11. The lighting apparatus as set forth in claim 10, wherein the light source is placed so that an irradiation angle of the light incident on the first light guide layer with respect to the light guide surface of the first light guide layer falls in a predetermined range.

12. The lighting apparatus as set forth in claim 11, wherein the light source includes a light focusing optical element for focusing the light incident on the first light guide layer of the light guide plate, so that the light is focused in a certain range of angles with respect to a stacking surface of the light guide plate.

13. The lighting apparatus as set forth in claim 12, wherein the light focusing optical element is a cylindrical lens.

14. The lighting apparatus as set forth in claim 10, wherein the light guide plate includes a plurality of the first light guide layer on the second light guide layer which are placed so that their light guide surfaces are opposed with a certain interval therebetween, and the light source is provided between the light guide surfaces.

15. The lighting apparatus as set forth in claim 10, further comprising a mirror for guiding the light from the light source to the first light guide layer.

16. A flat light source apparatus comprising a plurality of the lighting apparatus as set forth in any one

of claims 10 to 15, the lighting apparatuses being placed side by side.

17. The flat light source apparatus as set forth in claim 16, wherein reflection means of one of two lighting apparatuses is opposed to reflection means of another lighting apparatus.

18. A display apparatus comprising the light guide plate as set forth in any one of claims 1 to 9.